

WHAT IS CLAIMED IS:

1. A catheter assembly comprising:
a control handle;
an inner member having a distal portion for mounting a medical device and a proximal portion having a proximal end attached to the control handle and a distal end attached to the distal portion;
a guide wire receiving member defining a lumen for receiving a guide wire attached to the proximal portion; and
an outer member having a proximal end and a distal end, the proximal end being connected to the control handle, the outer member being adapted to at least partially cover the medical device and retractable by actuation of the control handle to uncover the medical device, the outer member having a distal opening in communication with the guide wire receiving member, the inner member and the outer member dimensioned for relative axial movement along a longitudinal axis.
2. The catheter assembly of claim 1 wherein the guide wire receiving member is made from a tubular member having a wire coil disposed therein.
3. The catheter assembly of claim 1 wherein the proximal portion is made with a hypotube.
4. The catheter assembly of claim 1 wherein the hypotube is made from stainless steel or a nickel-titanium alloy.
5. The catheter assembly of claim 1 wherein the proximal portion is made from a tubular member having a wire coil disposed therein.

6. The catheter assembly of claim 1 wherein the proximal portion is made with a support mandrel.

7. The catheter assembly of claim 6 wherein the support mandrel is made from a flexible elongate wire.

8. The catheter assembly of claim 1 wherein the outer member includes a distal restraining sheath portion adapted to cover the medical device which is made from a nylon-coated polyimide material.

9. The catheter assembly of claim 8 wherein the nylon-coated polyimide material has an inner layer made from polyimide and an outer layer made from nylon.

10. A catheter assembly comprising:
an elongated catheter having an inner member and an outer member extending along a longitudinal axis, the inner member and the outer member dimensioned for relative axial movement, the outer member having an opening for receiving a guide wire therethrough and the inner member having a guide wire receiving member including a lumen defined therein; and
an anti-rotation member associated with the outer member and being adapted to engage the guide wire receiving member formed on the inner member to allow axial movement therebetween the inner and outer members and prevent rotational movement between.

11. The catheter assembly of claim 10 wherein the anti-rotation member is a substantially U-shaped member formed on the outer member and the inner lumen has a substantially U-shaped lumen formed therein, the U-shaped member being slidable over the U-shaped lumen.

12. The catheter assembly of claim 10 wherein the outer member has a wall and a lumen defined therein and the inner lumen includes a substantially U-shaped lumen formed near the guide wire receiving member, the anti-rotation member being a tab-like member formed on the wall of the outer member and extending into the lumen of the outer member, the tab-like member being adapted to slide within the substantially U-shaped lumen of the inner member.

13. The catheter assembly of claim 10 further including a stent mounted on the inner member.

14. A catheter assembly comprising:

- a. a catheter having
 - i. a proximal end and a distal end;
 - ii. a distal opening at the distal end;
 - iii. a control handle attached to the proximal end; and
 - iv. an inner member and an outer member extending along a longitudinal axis and forming the catheter, the inner member and the outer member dimensioned for relative axial movement, the inner member including a distal portion adapted to receive a medical device and a proximal portion including a proximal end attached to the control handle, the inner member including a guide wire receiving member for receiving a guide wire which defines a passageway which extends to the distal opening the guide wire receiving member being attached to the distal end of the proximal portion, the outer member having a distal portion adapted to at least partially cover the medical device and being retractable to uncover the medical device, the outer member having an intermediate portion made from a tubular member having a first lumen through which the proximal portion extends and a second lumen which defines a lumen through which the guide wire

receiving member extends, the intermediate portion having an opening extending into the second lumen which is in communication with the passageway of the guide wire receiving member.

15. The catheter assembly of claim 14 wherein the proximal portion is made with a support mandrel.

16. The catheter assembly of claim 14 wherein the intermediate portion is attached to a proximal portion having a proximal end attached to the control handle which is movable by the control handle to move the distal portion of the outer member.

17. The catheter assembly of claim 14 wherein the guide wire receiving member slides within the second lumen of the intermediate portion.

18. A sheath for restraining a self-expanding stent on a catheter assembly, the sheath comprising:

a tubular body having an inner surface which directly contacts the self-expanding stent and an outer surface, the tubular body being made from a layer of polyimide to form the inner surface and a layer of nylon covering the layer of polyimide.

19. A method for using a hemostasis valve on a patient, comprising:
providing a catheter assembly including a retractable outer member which covers a medical device;
providing a hemostasis valve for placement into the patient;
providing a funnel introducer into the opening of the hemostasis valve; and
introducing the catheter assembly into the funnel introducer.

20. The method of claim 19, further including:
providing a guide wire; and
placing the guide wire into the opening of the hemostasis valve in frictional contact with the outer surface of the funnel introducer.
21. The method of claim 20, further including:
locking the guide wire between the surface which defines the opening of the hemostasis valve and the funnel introducer; and
moving the outer member of the catheter assembly within the funnel assembly to uncover the medical device.
22. The method of claim 21, wherein the medical device is a self-expanding stent.
23. The method of claim 19, further comprising:
providing a guide wire; and
placing the guide wire into the funnel introducer with the catheter assembly.